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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/734,406

12/12/2003

Alok Kumar

P16884

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7590

03/16/2009

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EXAMINER

HO, CHUONG T

ART UNIT

PAPER NUMBER

2419

MAIL DATE

DELIVERY MODE

03/16/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/734,406	Applicant(s) KUMAR ET AL.	
	Examiner CHUONG T. HO	Art Unit 2419	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 December 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 and 25-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 7-9, 10-Cudak '757, 13-14, 25-26, 28 is/are rejected.
- 7) ☒ Claim(s) 4-6, 12, 15, 27 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The amendment filed 12/30/08 have been entered and made of record.

Response to Arguments

2. Applicant's arguments filed 12/30/08 have been fully considered but they are not persuasive.

Claim 1:

In the page 4, lines 4-7, the applicant argues the combination of Tsao '491 and Katayama '653 does not teach or suggest "arranging for the packet to be transmitted through a port without storing the packet identifier in a local transmit queue if the number of transmit buffers does not exceed a pre\- determined threshold"

The examiner respectfully disagrees with the applicant's argument.

Katayama '653 teaches or suggest arranging for the packet (notified packet) to be transmitted through a port without storing the packet identifier in a local transmit queue if the number of transmit buffers does not exceed a predetermined threshold (figure 1, paragraph [0044] if the amount of the buffer 1 does not exceed a threshold associated with a priority...the received data item 5a, 5b having priority A and B are discarded without being stored in the buffer 1) (paragraph [0060] when the packet belonging a priority which is not allowed to be stored, the data transfer circuit 130 notify the reception interface by sending the notified packet through a port).

For the reasons above, the examiner believed the rejection of claim 1 over the combination of Tsao '491 and Katayama '653 should be sustained.

Claim 10:

In the page 4, lines 24-26, the applicant argues the combination of Tsao '491 and Katayama '653 does not teach or suggest “arranging for the packet to be transmitted through a port without storing the packet identifier in a local transmit queue if the number of transmit buffers does not exceed a pre-determined threshold “.

The examiner respectfully disagrees with the applicant's argument.

Katayama '653 teaches or suggest arranging for the packet (notified packet) to be transmitted through a port without storing the packet identifier in a local transmit queue if the number of transmit buffers does not exceed a predetermined threshold (figure 1, paragraph [0044] if the amount of the buffer 1 does not exceed a threshold associated with a priority...the received data item 5a, 5b having priority A and B are discarded without being stored in the buffer 1) (paragraph [0060] when the packet belonging a priority which is not allowed to be stored, the data transfer circuit 130 notify the reception interface by sending the notified packet through a port).

For the reasons above, the examiner believed the rejection of claim 10 over the combination of Tsao '491 and Katayama '653 should be sustained.

Claim 13:

In the page 5, lines 20-24, the applicant argues the combination of Tsao '491 and Katayama '653 does not teach or suggest “ a processing portion adapted to arrange for the packet to be transmitted through a port without storing the packet identifier in a local transmit queue if the number of transmit buffers does not exceed a pre-determined threshold “.

The examiner respectfully disagrees with the applicant's argument.

Katayama '653 teaches or suggest arranging for the packet (notified packet) to be transmitted through a port without storing the packet identifier in a local transmit queue if the number of transmit buffers does not exceed a predetermined threshold (figure 1, paragraph [0044] if the amount of the buffer 1 does not exceed a threshold associated with a priority...the received data item 5a, 5b having priority A and B are discarded without being stored in the buffer 1) (paragraph [0060] when the packet belonging a priority which is not allowed to be stored, the data transfer circuit 130 notify the reception interface by sending the notified packet through a port).

For the reasons above, the examiner believed the rejection of claim 13 over the combination of Tsao '491 and Katayama '653 should be sustained.

Claim 25:

In the page 6, lines 16-20, the applicant argues the combination of Marshall '235 and Katayama '653 does not teach or suggest “ a processing portion adapted to arrange for the packet to be transmitted through a port without storing the packet

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identifier in a local transmit queue if the number of transmit buffers does not exceed a pre-determined threshold “.

The examiner respectfully disagrees with the applicant’s argument.

Katayama ‘653 teaches or suggest arranging for the packet (notified packet) to be transmitted through a port without storing the packet identifier in a local transmit queue if the number of transmit buffers does not exceed a predetermined threshold (figure 1, paragraph [0044] if the amount of the buffer 1 does not exceed a threshold associated with a priority...the received data item 5a, 5b having priority A and B are discarded without being stored in the buffer 1) (paragraph [0060] when the packet belonging a priority which is not allowed to be stored, the data transfer circuit 130 notify the reception interface by sending the notified packet through a port).

For the reasons above, the examiner believed the rejection of claim 25 over the combination of Tsao '491 and Katayama '653 should be sustained.

3. Claims 1-15, 25-28 are pending.

Claim Objections

4. Claims 13-14, 25-26 are objected to because of the following informalities:

“adapted to” language is not a limitation and does not constitute any patentable sense.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 1, 7- 9, 10, 13, 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsao et al. (Patent No.: US 7,236,491 B2) in view of Katayama et al. (Pub. No.: US 2003/0204653 A1)

Regarding to claim 1, Tsao '491 disclose receiving at a processing element a request to transmit a packet associated with a packet identifier (col. 3, lines 35-40, packet identifier = identification of flow) (col. 2, lines 16-20, receiving a packet, identifying a flow for the packet) ;
determining a number of transmit buffers (figure 4, queues 112 (1) ... 112 (n)) to be associated with the packet (col. 18, lines 23-26 claim 1, based on the size of packet, processing said packet in the number of queues) (col. 3, lines 35-40, retrieves the identification of flows and determines the number n and identification of flow queues 112 (1) and 112 (n)).

However, Tsao '491 are silent to disclosing arranging for the packet to be transmitted through a port without storing the packet identifier in a local transmit queue if the number of transmit buffers does not exceed a pre- determined threshold

Katayama '653 teaches or suggest arranging for the packet (notified packet) to be transmitted through a port without storing the packet identifier in a local transmit queue if the number of transmit buffers does not exceed a predetermined threshold (figure 1, paragraph [0044] if the amount of the buffer 1 does not exceed a threshold associated with a priority...the received data item 5a, 5b having priority A and B are discarded without being stored in the buffer 1) (paragraph [0060] when the packet belonging a priority which is not allowed to be stored, the data transfer circuit 130 notify the reception interface by sending the notified packet through a port).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Tsao '491 with the teaching of Katayama '653, since Katayama '653 recited the motivation in the paragraph [0015] which increase in received having low priority adversely affects transfer quality of received data having higher priority.

Regarding to claim 7, Tsao '491 disclose the limitations of claim 1 above.

However, Tsao '491 are silent to disclosing request to transmit the packet is received from a queue manager.

Katayama '653 discloses request to transmit the packet is received from a queue manager (figure 3, Amount of use of shared buffer detection circuit 160).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Tsao '491 with the teaching of Katayama '653, since Katayama '653 recited the motivation in the paragraph [0015] which increase in received having low priority adversely affects transfer quality of received data having higher priority.

Regarding to claim 8, Tsao '491 disclose the limitations of claim 1 above.

However, Tsao '491 are silent to disclosing to use thread , in multi-thread, reduced instruction set computer micro engine
Katayama '653 discloses to use thread in multi-thread (figure 3, priority class determination circuit 111a, 112a, 113a, 114a), reduced instruction set computer micro engine (paragraph [0053]).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Tsao '491 with the teaching of Katayama '653, since Katayama '653 recited the motivation in the paragraph [0015] which increase in received having low priority adversely affects transfer quality of received data having higher priority.

Regarding to claim 9, Tsao '491 discloses microengine is associated with at least one of processor 104 (figure 1, processor 104).

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Regarding to claim 10, Tsao '491 disclose receiving at a processing element a request to transmit a packet associated with a packet identifier (col. 3, lines 35-40, packet identifier = identification of flow) (col. 2, lines 16-20, receiving a packet, identifying a flow for the packet) ;
determining a number of transmit buffers (figure 4, queues 112 (1) ... 112 (n)) to be associated with the packet (col. 18, lines 23-26 claim 1, based on the size of packet, processing said packet in the number of queues) (col. 3, lines 35-40, retrieves the identification of flows and determines the number n and identification of flow queues 112 (1) and 112 (n)).

However, Tsao '491 are silent to disclosing arranging for the packet to be transmitted through a port without storing the packet identifier in a local transmit queue if the number of transmit buffers does not exceed a pre- determined threshold

Katayama '653 teaches or suggest arranging for the packet (notified packet) to be transmitted through a port without storing the packet identifier in a local transmit queue if the number of transmit buffers does not exceed a predetermined threshold (figure 1, paragraph [0044] if the amount of the buffer 1 does not exceed a threshold associated with a priority...the received data item 5a, 5b having priority A and B are discarded without being stored in the buffer 1) (paragraph [0060] when the packet belonging a priority which is not allowed to be stored, the data transfer circuit 130 notify the reception interface by sending the notified packet through a port).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Tsao '491 with the teaching of Katayama '653,

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since Katayama '653 recited the motivation in the paragraph [0015] which increase in received having low priority adversely affects transfer quality of received data having higher priority.

Regarding to claim 13, Tsao '491 disclose receiving at a processing element a request to transmit a packet associated with a packet identifier (col. 3, lines 35-40, packet identifier = identification of flow) (col. 2, lines 16-20, receiving a packet, identifying a flow for the packet) ;

determining a number of transmit buffers (figure 4, queues 112 (1) ... 112 (n)) to be associated with the packet (col. 18, lines 23-26 claim 1, based on the size of packet, processing said packet in the number of queues) (col. 3, lines 35-40, retrieves the identification of flows and determines the number n and identification of flow queues 112 (1) and 112 (n)).

However, Tsao '491 are silent to disclosing for the packet to be transmitted through a port without storing the packet identifier in a local transmit queue if the number of transmit buffers does not exceed a pre- determined threshold

Katayama '653 teaches or suggest arranging for the packet (notified packet) to be transmitted through a port without storing the packet identifier in a local transmit queue if the number of transmit buffers does not exceed a predetermined threshold (figure 1, paragraph [0044] if the amount of the buffer 1 does not exceed a threshold associated with a priority...the received data item 5a, 5b having priority A and B are discarded without being stored in the buffer 1) (paragraph [0060] when the packet

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belonging a priority which is not allowed to be stored, the data transfer circuit 130 notify the reception interface by sending the notified packet through a port).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Tsao '491 with the teaching of Katayama '653, since Katayama '653 recited the motivation in the paragraph [0015] which increase in received having low priority adversely affects transfer quality of received data having higher priority.

Regarding claim 28, Tsao '491 discloses the limitations of claim 1 above.

However, Tsao '491 are silent to disclosing storing the packet in the number of transmit buffers

Katayama '653 discloses storing the packet in the number of transmit buffers (figure 5, small buffers 150).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Tsao '491 with the teaching of Katayama '653, since Katayama '653 recited the motivation in the paragraph [0015] which increase in received having low priority adversely affects transfer quality of received data having higher priority.

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7. Claims 2, 11, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined system (Tsao '491 – Katayama '653) in view of Shirai et al. (US Patent No. 5,734,654 03/31/1998).

Regarding to claim 2, the combined system (Tsao '491 – Katayama '653)discloses the limitations of claim 1 above; however, the combined system (Tsao '491 – Katayama '653) are silent to disclosing to store packet IP in local transmit queue for that port if the number of transmit buffer exceeds the pre-determined threshold.

Shirai et al. disclose to arrange packet identifier to be stored in local transmit queue for that port if the number of transmit buffer exceeds the pre-determined threshold (figure 18 shows if congestion is detected then packet is stored in common buffer means local memory, congestion is detected based on available resources such as port, transmitting buffer etc, buffer exceeds a predetermined references value, col. 2, lines 27-32).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to add technique from Shirai to the combined system (Tsao '491 – Katayama '653)in order to store packet ID in local transmit queue, thereby preventing packets to being discarded (5,734,654, col. 3, lines 55-67).

8. Regarding to claim 11, claim 11 is rejected the same reasons of claim 2 above.

9. Regarding to claim 14, claim 14 is rejected the same reasons of claim 2 above.

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10. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combined system (Tsao '491 – Katayama '653 – Shirai) in view of Karisoon (Pub. No. : US 2002/0146014).

Regarding to claim 3, the combined system (Tsao '491 – Katayama '653 – Shirai) discloses that covers substantially all limitation of parent as claim above; however, the combined system (Tsao '491 – Katayama '653 – Shirai) does not teach to store packet in external memory when local transmit queue for that port is full.

Karisoon teaches technique to store packet in external memory when local transmit queue for that port is full (page 9, paragraph [0016]).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to add technique from Karisoon into the combined system (Tsao '491 – Katayama '653 – Shirai) to prevent packets from discarded.

11. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Marshall et al. (Pub.No.: US 2004/0213235 A1) in view of Katayama (Pub. No.: US 2003/0204653 A1).

Regarding to the claim 25, Marshall et al. discloses a backplane (figure 2, backplane 220); a first line card (figure 2, line cards 400a, 400b, 400c connected to the backplane 220); and a second line card (figure 2, line cards 400a, 400b, 400c connected to the backplane (220), the second line card including a processing element (figure 4, classification engine 500) having: an input path (figure 4, input interface 420)

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to receive a request to transmit a packet associated with a packet identifier ([0011], information associated with a packet, e.g., a virtual local area network (VLAN) identifier (ID) and/or destination port ID, is provided to an initial classification stage of a classification engine which generates a criterion, e.g., a packet field, and a rule associated with the packet); a local memory portion (figure 4, queuing logic 440) Determining a number of transmit buffers ([0012], queue ID, The VLAN ID and destination port ID information associated with the packet are applied to the VLAN and port/channel tables, respectively, to generate a set of queue ID base pointers, packet field values, packet field valid values, and rules) ([0013], Information contained in the selected final state table entry is combined with the queue ID base pointers to generate the identifier, i.e., a queue ID, associated with the classified packet) ([0040], The classification engine 500 processes the packet including classifying the packet and determining a queue ID of a calendar queue 442 associated with the classified packet. The queue ID is transferred to the queuing logic 440 which selects a calendar queue 442 associated with the queue ID and places information associated with the packet (e.g., a pointer to the packet in buffer 450) on the selected queue 442. When the information associated with the packet reaches the head of the selected queue 442, the queuing logic 440 transfers the packet from buffer 450 to the output interface 430 where it is transferred out the destination port 217, associated with the destination port ID, onto the network) (see figure 4); arranging for the packet to be transmitted through a port (figure 4, output interface 430).

However, Marshall et al. are silent to disclosing arranging for the packet to be transmitted through a port without storing the packet in a local transmit queue if the number of transmit buffers does not exceed a pre-determined threshold.

Katayama '653 teaches or suggest arranging for the packet (notified packet) to be transmitted through a port without storing the packet identifier in a local transmit queue if the number of transmit buffers does not exceed a predetermined threshold (figure 1, paragraph [0044] if the amount of the buffer 1 does not exceed a threshold associated with a priority...the received data item 5a, 5b having priority A and B are discarded without being stored in the buffer 1) (paragraph [0060] when the packet belonging a priority which is not allowed to be stored, the data transfer circuit 130 notify the reception interface by sending the notified packet through a port).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Marshall '235 with the teaching of Katayama '653, since Katayama '653 recited the motivation in the paragraph [0015] which increase in received having low priority adversely affects transfer quality of received data having higher priority.

12. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combined system (Marshall '235 – Katayama '653) in view of Shirai et al. (US Patent No. 5,734,654 03/31/1998).

Regarding to claim 26, the combined system (Marshall '235 – Katayama '653) discloses the limitations of claim 25 above; however, the combined system (Marshall -

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Kota) are silent to disclosing wherein the processing portion is further adapted to store the packet identifier in the local memory portion if the number of transmit buffers exceed the pre-determined threshold.

Shirai et al. disclose wherein the processing portion is further adapted to store the packet identifier in the local memory portion if the number of transmit buffers exceed the pre-determined threshold (figure 18 shows if congestion is detected then packet is stored in common buffer means local memory, congestion is detected based on available resources such as port, transmitting buffer etc, buffer exceeds a predetermined references value, col. 2, lines 27-32).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to add technique from Shirai to the combined system (Marshall – Katayama '653) in order to store packet ID in local transmit queue, thereby preventing packets to being discarded (5,734,654, col. 3, lines 55-67).

Allowable Subject Matter

13. Claims 4-6,12, 15, 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHUONG T. HO whose telephone number is (571)272-3133. The examiner can normally be reached on 8:00 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, EDAN ORGAD can be reached on (571) 272-7884. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CH
03/09/09

/Edan Orgad/
Supervisory Patent Examiner, Art Unit 2419